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EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 02/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,340

Applicant(s)

KOBAYASHI ET AL.

Examiner

Janis L. Dote

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1,3-16 and 18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Dec. 13, 2005, has been entered.

2. The examiner acknowledges the amendments to claims 1, 3, 5-7, 11, 12, 15, 16, and 18, and the cancellation of claims 2, 17, and 19 set forth in the amendment filed on Dec. 13, 2005. Claims 1, 3-16 and 18 are pending.

3. For the reasons discussed in the office action mailed on Jul. 13, 2005, paragraph 4, the invention recited in claims 16 and 17 filed on Apr. 14, 2005, which is now claimed in instant claims 16 and 18, is directed to an invention that is independent or distinct from the invention originally claimed.

Applicants' traversal in the reply filed on Nov. 10, 2005, which is repeated in the response filed on Dec. 13, 2005, of the restriction requirement that was necessitated by the addition of the invention recited in claims 16 and 17 filed in the amendment

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on Apr. 14, 2004, which is now recited in instant claims 16 and 18, was not found persuasive for the reasons discussed in the Advisory action mailed on Dec. 6, 2005, which are incorporated herein by reference. The requirement was deemed proper and was therefore made FINAL.

Accordingly, claims 16 and 18 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicants timely traversed the restriction (election) requirement in the reply filed on Nov. 10, 2005.

4. The objections to the specification set forth in the office action mailed on Jul. 13, 2005, paragraph 7, have been withdrawn in response to the amended paragraphs filed on Dec. 9, 2004, beginning at page 27, line 22, at page 32, line 5, and at page 26, line 7, of the specification.

The objection to claim 11 set forth in the office action mailed on Jul. 13, 2005, paragraph 8, has been withdrawn in response to the amendment filed on Dec. 13, 2005, to claim 11.

The rejections of claims 1, 5, 18, and 19 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on Jul. 13, 2005, paragraph 10, have been withdrawn in response to

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the amendments filed Dec. 13, 2005, to claims 1, 5, and 18, and the cancellation of claim 19.

The rejections of claims 1-15, 18, and 19 under 35 U.S.C. 112, first paragraph, set forth in the office action mailed on Jul. 13, 2005, paragraph 12, items (1) to (4) and (8), have been withdrawn in response to the amendments filed Dec. 13, 2005, to claims 1, 3, 5-7, 15, and 18, and the cancellations of claims 2 and 19.

5. The amendment filed on Dec. 9, 2004, is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The amended paragraph beginning at page 29, line 12, of the specification, states that the toner comprises 84 wt% of the styrene-acryl copolymer resin.

The originally filed specification at page 29, line 12, discloses that the toner components comprise "85 wt%" of the styrene-acryl copolymer resin, 1 wt% of a charge control agent, 10 wt% of a carbon black, 4.5 wt% of a polyethylene wax, and 0.75 wt% of a paraffin wax.

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There is no evidence on the present record showing that the amount of the styrene-acryl copolymer is 84 wt% as stated in the amended paragraph.

Applicants are required to cancel the new matter in the reply to this Office Action.

Applicants' arguments filed on Dec. 13, 2005, have been fully considered but they are not persuasive.

Applicants assert that the amendment changing the fixing resin amount from "85 wt%" to -- 84 wt% -- merely corrected an apparent typographic error.

Applicants' comments are not persuasive. As discussed in the objection above, the toner comprises five toner components at particular amounts. There is nothing in the originally filed specification to indicate that the typographic error was in the fixing resin amount of "85 wt%," and not in the amounts of one or more of the other four remaining toner components.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 9-13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 is indefinite in the phrase "natural wax comprises at least one of animal wax, mineral wax and petroleum wax" (emphasis added) because it is not clear whether claim 9 requires that the natural wax comprise only one of the three recited components or all three of the recited components. In colloquial English, the phrase "at least one of A . . . and Z" can be read as being met by any one of A . . . Z. More formally, if only one element is required, one might write "at least one of A . . . or Z." Or if all elements are required, one might write "at least one each of A . . . and Z."

Claim 10 is indefinite in the phrase "synthetic wax comprises at least one of a Fischer-Tropsch wax and polyethylene wax" (emphasis added) because it is not clear whether claim 10 requires that the synthetic wax comprise only one of the two recited components or both.

Claim 11 is indefinite in the phrase "said fixing resin comprises at least one of a homopolymer of styrene . . . and petroleum resin" (emphasis added) because it is not clear whether claim 11 requires that the fixing resin comprise only

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one of the recited members in the Markush group or all of the recited members.

Claim 12 is indefinite in the phrase "said fixing resin comprises at least one of styrene copolymer and polyester resin" (emphasis added) for lack of unambiguous antecedent basis in claim 1 for the reasons discussed supra for claim 11. The phrase is further indefinite because it is not clear whether claim 12 requires that the "fixed resin" comprise only one of the two recited resins or both.

Claim 13 is indefinite in the phrase "plurality of wax components comprise at least one of polyethylene wax, a paraffin wax, alpha olefin wax and a Fischer-Tropsch wax" (emphasis added) because it is not clear whether claim 13 requires that the plurality of waxes comprise only one of the four recited waxes or all four of the recited waxes.

Claim 15 is indefinite because it is not clear what is meant by the phrase "a rationalized molecular weight distribution by including an appropriate amount of a low molecular weight wax in said wax." The instant specification at page 11, lines 14-20, does not define the term "rationalized molecular weight distribution."

Applicants' arguments filed on Dec. 13, 2005, have been fully considered but they are not persuasive.

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Regarding the rejections of claims 9-13, applicants assert that the phrase "at least one" is definite.

However, applicants have not addressed the rejections. The examiner did not state that the phrase "comprises at least one" was indefinite. Claims 9 to 13 recite the phrase at least one of . . . and . . . " (emphasis added). It is not clear whether the claims require only one of the components recited in the list of components or all of the recited components. For example, does claim 9 require that the natural wax comprise an animal wax, a mineral wax, or a petroleum wax or that the natural wax comprises an animal wax, mineral wax, and a petroleum wax? The examiner requests clarification of what the claim language "comprises at least one of . . . and . . . " refers as a condition of withdrawal of this rejection.

Applicants' response did not address the rejection of claim 15.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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9. Claims 8-10 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(1) Claims 8-10 recite that the plurality of wax components comprises one of a natural wax and a synthetic wax.

The originally filed specification does not provide an adequate written description of said plurality of wax components. The originally filed specification at page 15, lines 19-20, discloses that the "wax can be obtained from the natural wax or the synthetic wax." Examples 1 and 2 exemplify two particular wax mixtures comprising a particular polyethylene wax and a particular paraffin wax that have particular crystallinities and melting points. The two particular wax mixtures do not provide an adequate written description for the broader species recited in the instant claims.

(2) Claim 13 recites that the plurality of wax components comprises "at least one . . . alpha olefin wax."

The originally filed specification does not provide an adequate written description of said alpha olefin wax. The

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originally filed specification at page 15, lines 19-23, discloses that the "wax can be obtained from the natural wax or the synthetic wax," where the synthetic wax can be a Fischer-Tropsch wax or polyethylene wax. Example 3 exemplifies a particular alpha-olefin wax that has a particular crystallinity and melting point. The one particular alpha-olefin wax does not provide an adequate written description for the broader species of alpha-olefin wax recited in the instant claim.

(3) If claims 9, 10 and 13 require that the plurality of wax components comprise all of the recited waxes, the claims are rejected for the following reasons.

The originally filed specification does not provide an adequate written description of said plurality of wax components. The originally filed specification at page 15, lines 19-20, discloses that the "wax can be obtained from the natural wax or the synthetic wax." The originally filed specification at page 15, lines 20-23, discloses that the synthetic wax can be a Fischer-Tropsch wax or a polyethylene wax and that the natural wax can be an "animal/plant wax," mineral wax or a petroleum wax. Examples 1 and 2 exemplify two particular wax mixtures comprising a particular polyethylene wax and a particular paraffin wax that have particular crystallinities and melting points. The originally filed

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specification does not disclose a plurality of waxes comprising all of the waxes recited in instant claims 9, 10, and 13.

Applicants' arguments filed Dec. 13, 2005, have been fully considered but they are not persuasive.

Applicants assert that the specification at page 15, lines 19-23, provides clear support for the limitations recited in instant claims 8-10. Applicants submit that examples 1 and 2 are merely non-limiting examples of certain exemplary embodiments of the invention.

Applicants' arguments are not persuasive for the reasons of record discussed in item (1) above. The originally filed specification at page 15, lines 19-23, merely discloses that the wax can be a natural wax or a synthetic wax; and provides a list of various natural waxes and synthetic waxes. There is no general disclosure in the originally filed specification of the combination of the waxes as broadly recited in instant claims 8-10. The examples in the specification only provide an adequate written description for those particular wax mixtures exemplified or particular waxes exemplified in the examples.

With respect to claim 13, applicants assert that the disclosure at page 30, lines 11-12 and in Table 1 provides support for "an alpha olefin wax" recited in instant claim 13.

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Applicants' assertion is not persuasive. The disclosure at page 30, lines 11-12, and in Table 1 refers to a particular alpha-olefin wax used in Example 3. That alpha-olefin wax has a particular crystallinity and melting point. The one example in the specification only provides an adequate written description for the particular wax exemplified in the example. The one particular alpha-olefin wax does not provide an adequate written description for the broader species of alpha-olefin wax recited in the instant claim. There is no general disclosure in the originally filed specification for the alpha olefin broadly recited in instant claim 13.

Accordingly, the rejections of claims 8-10 and 13 stand.

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. In the interest of compact prosecution, the examiner has interpreted the claim language in claims 9, 10, 11, 12, and 13 as requiring only one of the recited components.

Rejections based on this interpretation are set forth infra.

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12. Claims 1, 5-9, and 11-13 are rejected under 35

U.S.C. 102(b) as being anticipated by US 5,605,778 (Onuma), as evidenced by Schaffert, Electrophotography, page 604, Fig. 248.

Onuma discloses a toner comprising 100 parts by weight of styrene-n-butyl acrylate binder resin **1** and 4 parts by weight of a wax mixture comprising a plurality of waxes. The wax mixture comprises paraffin wax **J** and polypropylene wax **K**, in a weight ratio of 1:1. Col. 18, lines 50-58; col. 18, line 62, to col. 19, line 8; col. 19, lines 25-44; example 9 at col. 21, lines 55-58; and Table 2, example 9. Onuma further discloses an image forming apparatus - a commercially available electrophotographic copying machine NP-4835 manufactured by Canon K.K., which comprises an OPC (organic photoconductor) photosensitive drum, i.e., an electrostatic charge holding member, and the toner in example 9. Col. 19, line 62, to col. 20, line 12. Although Onuma does not explicitly disclose that the apparatus comprises a developing unit, it is well-known in the electrophotographic arts that commercially available electrophotographic copying machines comprise a developing unit. See Schaffert, Electrophotography, page 604, Fig. 248, which shows the schematic diagram of a XEROX 914 copier. Thus, the Onuma image forming apparatus comprises a developing device unit as recited in instant claim 5.

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The wax mixture in the example 9 toner is present in the amount of 3.8 wt% based on the weight of the binder resin and the wax, which is within the ranges of 0.5 to 10 wt% and 3.0 to 6.0 wt%, based on the weight of the fixing resin and wax in instant claims 6 and 7, respectively. The amount 3.8 wt% was determined from the information provided at col. 19, lines 25-44. The styrene-n-butyl acrylate binder resin meets the fixing resin limitation recited in instant claims 11 and 12. Paraffin wax **J** has a maximum heat absorption peak, i.e., melting point, of 62°C, which is within the range of 50 to 120°C recited in instant claim 1. See Table 1, wax **J**. Paraffin wax **J** and polypropylene wax **K** meet the wax compositional limitations recited in instant claims 8, 9, and 13. Paraffin wax **J** exhibits on onset temperature of heat absorption (T_n) in a DSC curve at 54°C. Polypropylene wax **K** exhibits on onset temperature of heat absorption in a DSC curve at 133°C. See Table 1 at col. 23, waxes **J** and **K**. The Onuma toner in example 9 satisfies formulas (1) to (3) recited in instant claims 1 and 5. "T" in formula (1) is 93.5°C (i.e., $[54^\circ\text{C} \times 50 \text{ wt}\% + 133^\circ\text{C} \times 50 \text{ wt}\%]/100 \text{ wt}\%$). The "T" value of 93.5°C is greater than 56, so the inequality in formula (2) is satisfied.

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13. Claim 4 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Onuma.

Onuma discloses a toner as described in paragraph 12 above, which is incorporated herein by reference. As discussed in paragraph 12, the toner disclosed by Onuma comprises a styrene-n-butyl acrylate binder resin. The binder resin meets the fixing resin composition limitation "at least a vinyl copolymer" recited in instant claim 4.

Instant claim 4 is written in product-by-process format. Claim 4 recites that the vinyl copolymer "is polymerized in existence [sic] of the wax." Onuma does not exemplify making a toner as recited in instant claim 4. Rather, the toner in example 9 of Onuma is obtained by melt-kneading a mixture comprising the binder resin and the waxes in an extruder, cooling the melted mixture, pulverizing the cooled mixture, and classifying the pulverized composition to obtain toner particles. See example 9. However, as discussed above, the Onuma toner meets the compositional limitations recited in instant claim 4. Accordingly, the Onuma toner appears to be the same or substantially the same as the toner recited in instant claim 4. The burden is on applicants to prove otherwise. In re

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Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onuma.

Onuma discloses a toner as described in paragraph 12 above, which is incorporated herein by reference. As discussed in paragraph 12 above, the toner comprises the wax mixture comprising paraffin wax **J** and polypropylene wax **K**.

Onuma does not exemplify a wax mixture comprising paraffin wax **J** and a polyethylene wax as recited in instant claim 10.

Onuma teaches that the wax mixture provides a DSC curve on temperature increase, "showing a minimum onset temperature of heat absorption of at least 50°C and at least two heat absorption peaks including a largest peak and a second largest peak of which a lower temperature peak P_1 and a higher temperature peak P_2 have a peak temperature difference of at least 15°C, the lower temperature peak P_1 shows a half-width of at most 20°C between a lower half-width temperature L_1P and a higher half-width temperature H_1P , and the higher temperature peak P_2 shows a half-width temperature of at most 20°C between a lower half-width temperature L_2P and a higher half-width temperature H_2P , satisfying $L_2P - H_1P \geq 5^\circ\text{C}$." Col. 2, lines 37-54. According to

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Onuma, when the wax mixture meets the above requirements, the toner has excellent low-temperature fixability, anti-offset characteristics, and anti-blocking characteristics. Col. 2, lines 14-22. Onuma teaches that a wax mixture satisfying the above requirements may comprise a low-melting point wax for giving the lower temperature peak P_1 and a high-melting point wax for giving the higher temperature peak P_2 . The low temperature peak P_1 preferably is in the temperature range of 55-90°C and has a half-width of at most 20°C; while the higher temperature peak P_2 preferably is in the temperature range above 90 to 150°C and has a half-width of at most 20°C. The low-melting wax and the high-melting wax preferably show a difference in maximum heat absorption peak temperature "between 15-95°C . . . in view of function separation." Col. 7, line 66, to col. 8, line 21.

Onuma teaches that polypropylene wax **K**, which is the higher-melting point wax in the wax mixture in example 9, may equally be a polyethylene wax. Col. 4, lines 50-51; col. 18, lines 37-51; and Table 1, wax **E**, which is obtained by polymerizing ethylene in the presence of a Ziegler catalyst. Polyethylene wax **E** exhibits an onset temperature at 100°C, and has a maximum absorption peak temperature of 124°C having a half-width of 18°C. See Table 1, wax **E**. Paraffin wax **J**, which is the low-melting point wax in example 9, exhibits an onset

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temperature at 54°C, and has a maximum absorption peak temperature of 62°C having a half-width of 3°C. See Table 1, wax **J**. The difference in maximum heat absorption peak temperatures is 62°C, which is within the range of "between 15-95°C." Thus, polyethylene wax **E** and polyethylene wax **J** meet the preferred Onuma requirements for the higher-melting point and lower-melting point waxes.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Onuma, to use a polyethylene wax, such as polyethylene wax **E**, in place of polypropylene wax **K** in the example 9 toner of Onuma, such that the combination of the polyethylene wax with paraffin wax **J** satisfies the wax mixture requirement disclosed by Onuma. That person would have had a reasonable expectation of successfully obtaining a toner that has excellent low-temperature fixability, anti-offset characteristic, and anti-blocking resistance as disclosed by Onuma.

The wax mixture comprising paraffin wax **J** and polyethylene wax **E** in a weight ratio of 1:1 satisfies formulas (1) to (3) recited in instant claim 1. "T" in formula (1) is 77°C (i.e., $[54^{\circ}\text{C} \times 50 \text{ wt}\% + 100^{\circ}\text{C} \times 50 \text{ wt}\%]/100 \text{ wt}\%$). The "T" value of 77°C is greater than 56, so the inequality in formula (2) is satisfied.

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15. Applicants' arguments filed on Dec. 13, 2005, with respect to the rejections over Onuma in paragraphs 12-14 above have been fully considered but they are not persuasive.

Applicants assert that the rejection under 35 U.S.C. 102(b) over Onuma in paragraph 12 above is not proper because a single reference was not used.

Applicants' assertion is without merit. A "35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to . . . explain the meaning of a term used in the reference . . . or . . . show that a characteristic not disclosed in the reference is inherent." MPEP 2131.01. In the rejection in paragraph 12 above, Schaffert is cited to show that it is well-known in the electrophotographic arts that commercially available copying machines comprise a developing unit. Thus, the commercially available electrophotographic copying machine NP-4835 disclosed in Onuma inherently comprises a developing unit. Thus, the citation of Schaffert is proper, and for the reasons discussed in the rejection, the Onuma copying apparatus satisfies apparatus components recited in instant claim 5.

Applicants further assert that Onuma does not anticipate the toner recited in instant claim 1 because Onuma's one example of the wax melting temperature in the range of 50 to 120°C

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recited in instant claim 1 does "not provide a range for the wax melting temperature" (emphasis in the original)."

Applicants' assertion is not persuasive. As set forth in the rejection in paragraph 12 above, the Onuma wax **J** has a maximum heat absorption peak, i.e., melting point, of 62°C, which is within the range of 50 to 120°C recited in instant claim 1. The maximum heat absorption peak of 62°C anticipates the melting point range recited in claim 1. "A specific example in the prior art which is within a claimed range anticipates the range." MPEP 2131.03 (8th edition, Rev. 3, Aug. 2005).

Accordingly, Onuma teaches every limitation recited in instant claims 1, 5-9, and 11-13, and therefore anticipates the toner and apparatus recited in those claims. For the reasons discussed in the rejections of claims 1 and 4-13 in paragraphs 12-14, the rejections over Onuma stand.

16. Claims 1, 3, 6, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,808,851 B2 (Bartel), as evidenced by US2003/0049552 A1 (Fields), US 6,849,371 B2 (Sacripante), US 2004/0043317 (Yaguchi'317), and US 2002/0160291 (Yaguchi'291).

Bartel discloses a toner comprising 81 wt% of a styrene-butyl acrylate copolymer binder resin and 9 wt% of a wax mixture

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based on the weight of the toner. The wax mixture comprises about 75 wt% of the polyethylene wax associated with the tradename POLYWAX 725 and 25 wt% of the polyethylene wax associated with the tradename POLYWAX 1000. Col. 14, lines 1-3; Example VI at col. 20; and col. 21, lines 11-14. The wax is present in an amount of 10 wt% based on the total amount of amount of binder resin and wax, which is within the range of 0.5 to 10 wt% based on the weight of the fixing resin and wax recited in instant claim 6. POLYWAX 725 and POLYWAX 1000 meet the wax compositional limitation recited in instant claim 13. The prior art discloses that POLYWAX 1000 has a crystallinity of 90%, which meets the limitation of at least one of the wax components having a crystallinity of greater 85% to less than 93%. See Yaguchi'317, paragraph 0245, lines 3-6, which discloses that polyethylene wax associated with the tradename PW1000 has a crystallinity 90%; and Yaguchi'291, at paragraph 0106, line 4, and in Table 1 at page 7, identifies the polyethylene wax associated with the tradename PW 1000 as also POLYWAX 1000. The styrene-n-butyl acrylate copolymer binder resin meets the fixing resin limitation recited in instant claims 11 and 12.

Bartel identifies POLYWAX 725 as a low molecular weight wax and POLYWAX 1000 as a high molecular weight wax. Col. 15,

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lines 12-15. Thus, POLYWAX 725 and POLYWAX 1000 meet the wax limitations of a low molecular weight wax and a wax having a "molecular weight which is higher than a molecular weight of said low molecular weight wax," respectively, recited in instant claim 14.

Bartel discloses that POLYWAX 725 has a melting point determined by DSC of about 108°C, which is within the range of 50 to 120°C recited in instant claim 1. Col. 14, lines 2-3. The prior art discloses that POLYWAX 1000 exhibits an onset temperature in a DSC curve at 65.1°C; and that POLYWAX 725 exhibits an onset temperature of about 80°C. See Fields, Table 4 at page 6, POLYWAX 1000; and Sacripante, col. 12, lines 46-48. The Bartel toner in example IV satisfies formulas (1) to (3) recited in instant claim 1. "T" in formula (1) is 76.3°C (i.e., $[65.1^{\circ}\text{C} \times 25 \text{ wt}\% + 80^{\circ}\text{C} \times 75 \text{ wt}\%]/100 \text{ wt}\%$). The "T" value of 76.3°C is greater than 56, so the inequality in formula (2) is satisfied.

17. Claim 15 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bartel, as evidenced by Fields and Sacripante.

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Bartel, as evidenced by Fields and Sacripante, discloses a toner as described in paragraph 16 above, which is incorporated herein by reference.

Bartel does not disclose that its wax mixture "comprises a rationalized molecular weight distribution by including an appropriate amount of a low molecular weight wax in said wax" as recited in instant claim 15. However, as discussed supra, the Bartel wax mixture comprises a low molecular weight wax and a wax "having a molecular weight higher than that of the low molecular weight wax" as recited in instant claim 14. Thus, the Bartel wax mixture meets the "rationalized molecular weight distribution" recited in instant claim 15.

Furthermore, the Bartel toner is obtained by an emulsion-aggregation method. According to Bartel, when the toner is obtained by the emulsion aggregation method, the less wax protrusions are observed on the toner particles when the molecular weight of the wax is increased. Col. 13, line 63, to col. 14, line 32. Bartel teaches that "increasing the molecular weight of the wax to decrease wax protrusions on toner particles, however, may result in the loss of some desired toner properties," e.g., the minimum fixing temperature of the toner is increased. Col. 14, lines 32-35. Bartel shows in Fig. 4 that as the molecular weight of the wax increases, the melting

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point of the wax increases. This increase in melting point increases the minimum fixing temperature of the toner. Bartel discloses that "one has to determine the lowest increase in melting point of the wax [i.e., the molecular weight of the wax] that will result in a satisfactory number of wax protrusions on toner particle surfaces that will result in good particle size distribution and toner development, and accept that this will result in some increase in toner minimum fix temperature."

Col. 14, lines 36-46. Thus, it appears that Bartel recognizes that the amounts of the low molecular weight wax and the higher molecular weight wax can be optimized such that the number of wax protrusions can be reduced to a satisfactory value while maintaining a satisfactory minimum fixing temperature.

Accordingly, it is reasonable to presume that the Bartel wax mixture in example IV is "a rationalized molecular weight distribution" as recited in instant claim 15. The burden is on applicants to prove otherwise. Fitzgerald, supra.

18. Applicants' arguments filed on Dec. 13, 2005, with respect to the rejections over Bartel in paragraphs 16 and 17 above have been fully considered but they are not persuasive.

Applicants assert that Bartel does not teach or suggest a wax having a melting point as recited in instant claim 1 at

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col. 12, lines 60-61, and col. 21, lines 11-14.

However, as discussed in the rejection in paragraph 16 above, Bartel at col. 14, lines 2-3, teaches that POLYWAX 725 has a melting point determined by DSC of about 108°C, which meets the melting point range of 50 to 120°C recited in instant claim 1.

Applicants further assert that the rejection under 35 U.S.C. 102(e) over Bartel is not proper because a single reference was not used.

Applicants' assertion is without merit, as discussed in paragraph 15 above. A "35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to . . . explain the meaning of a term used in the reference . . . or . . . show that a characteristic not disclosed in the reference is inherent." MPEP 2131.01. In the rejection in paragraph 16 above, Fields is cited to show that POLYWAX 1000 used in the Bartel mixture of waxes inherently has an onset temperature in a DSC curve of 65.1°C. Sacripante is cited to show that POLYWAX 725 used in the Bartel mixture of waxes inherently has an onset temperature in a DSC curve of about 80°C. Yaguchi'317 and Yaguchi'291 are cited to show that POLYWAX 1000 inherently has a crystallinity of 90%. Thus, the citations of Fields, Sacripante, Yaguchi'317, and Yaguchi'291

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are proper.

Accordingly, Bartel teaches every limitation recited in instant claims 1, 3, 6, and 11-15, and therefore anticipates the toner recited in those claims. The rejections of claims 1, 3, 6, and 11-15 over Bartel in paragraphs 16 and 17 stand.

19. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by US 6,447,968 B1 (Ohno'968).

Ohno'968 discloses an image forming apparatus comprising a photosensitive drum 1, which carries an electrostatic latent image, and a developing unit 4-1, comprising a magnetic toner, wherein the developing unit develops the electrostatic latent image with the magnetic toner. Magnetic toner production example 1 at cols. 33-34; Fig. 1; and col. 35, line 55, to col. 36, line 11.

Ohno'968 does not exemplify the particular toner recited in the instant claims. However, the instant claim does not positively recite that the apparatus comprises the particular toner. Instant claim 5 merely recites "a developing unit for developing the electrostatic latent image, using an electrostatic charge image developing toner." The particular toner recited in the instant claim does not distinguish the structural elements in the instantly claimed apparatus from

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those in the apparatus in Ohno'968. A material (i.e., the toner) worked upon by the apparatus does not limit the apparatus claims. "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." See MPEP 2115. It is well settled, as stated in Ex parte Masham, 2 USPQ2d 1647, 1648 (Bd. Pat. App. & Int. 1987) that "a recitation with respect to the material intended to be worked upon by a claimed apparatus does not impose any structural limitations upon the claimed apparatus which differentiates it from the prior art apparatus satisfying the structural limitations of that claimed." Accordingly, the particular toner recited in the instant claim does not distinguish the instantly claimed apparatus from the apparatus disclosed by Ohno'968.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (571) 273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval

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(PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Feb. 12, 2006

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